Fig. 1

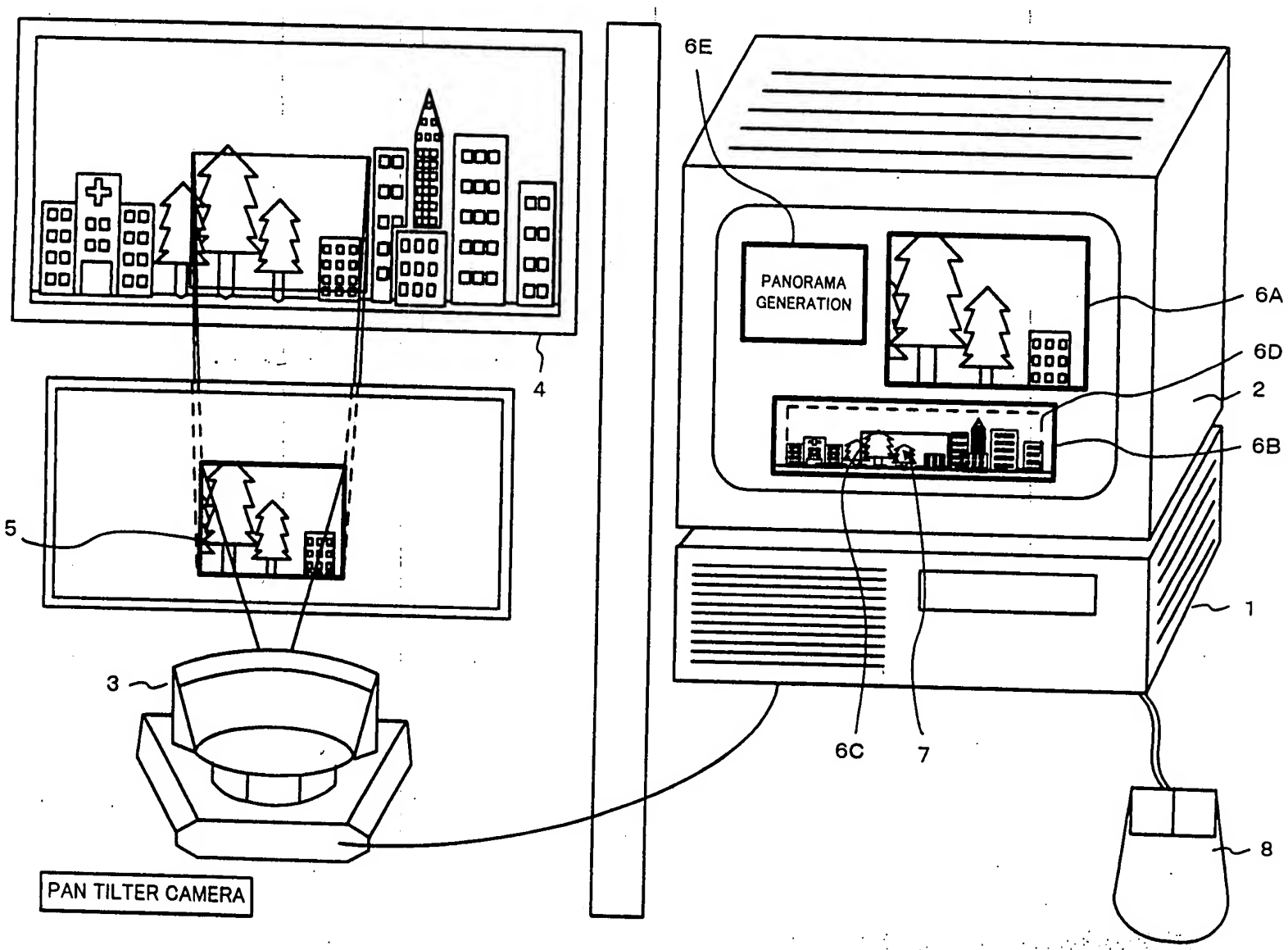

6E
PANORAMA GENERATION
6A
6D
2
6B
4
5
1
3
6C
7
8
PAN TILTER CAMERA

Fig. 2

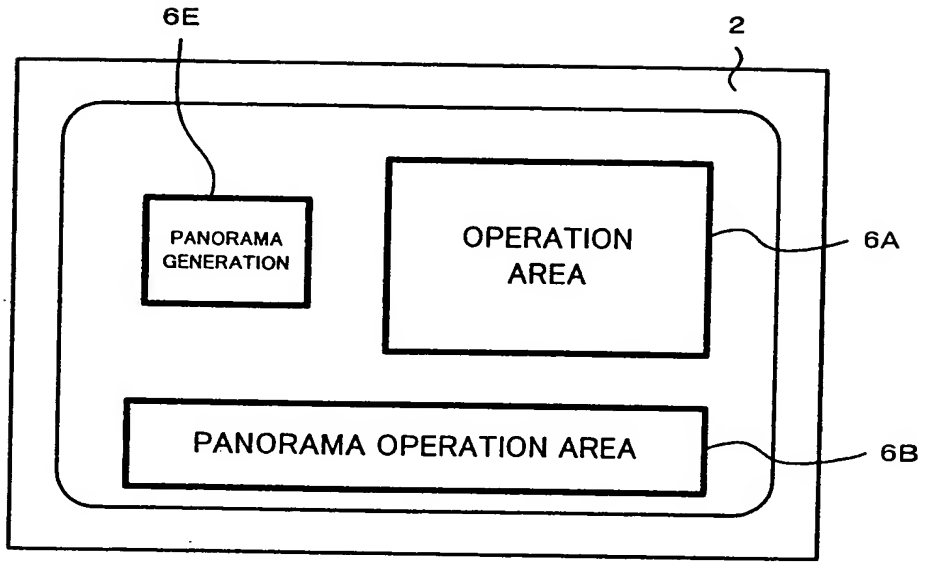

6E
2
PANORAMA GENERATION
OPERATION AREA
6A
PANORAMA OPERATION AREA
6B

Fig. 3

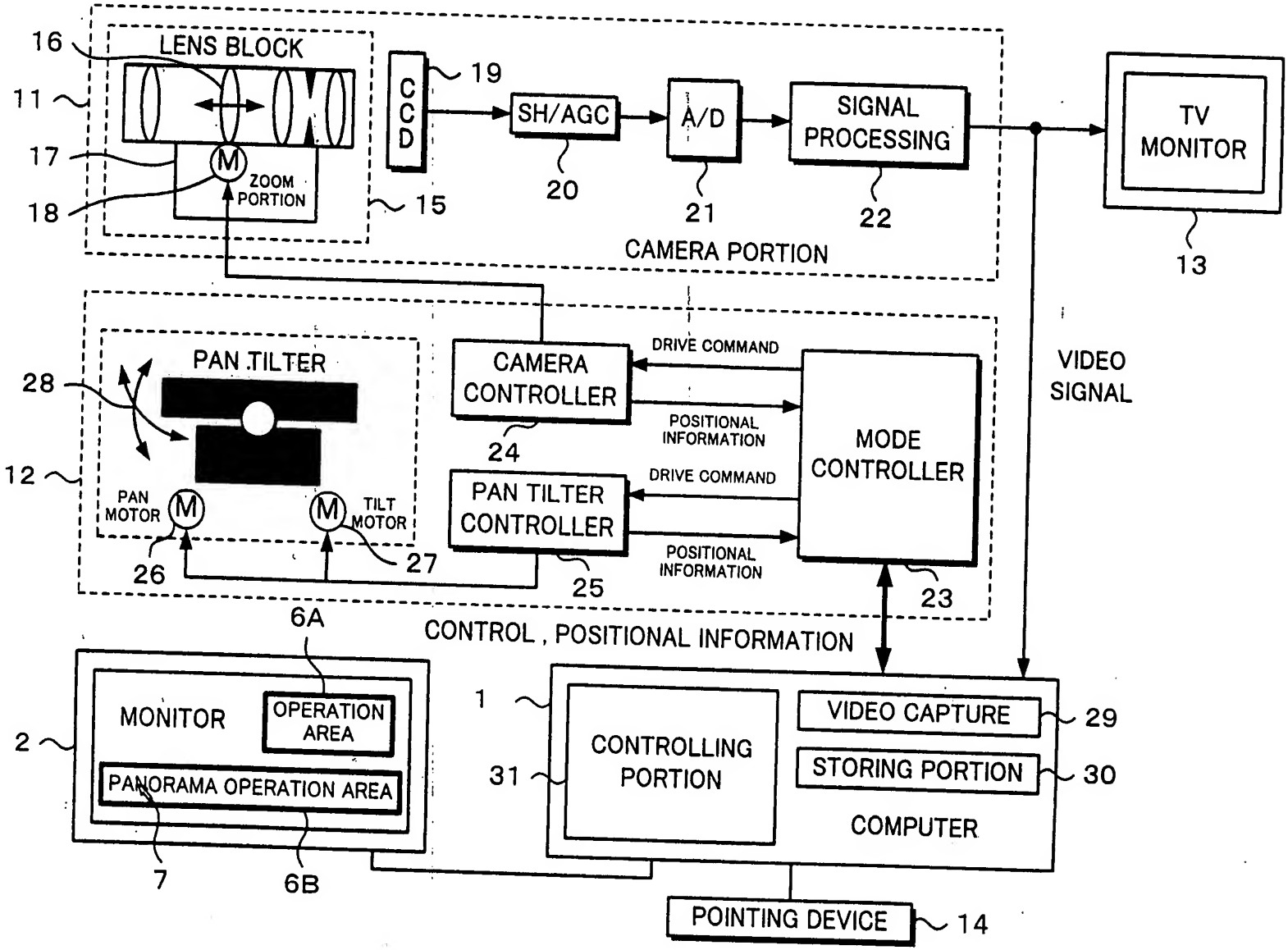

16
LENS BLOCK
11
17
18
M
ZOOM PORTION
15
CCD
19
SH/AGC
20
A/D
21
SIGNAL PROCESSING
22
CAMERA PORTION
TV MONITOR
13
VIDEO SIGNAL
28
PAN TILTER
12
PAN MOTOR
TILT MOTOR
26
27
CAMERA CONTROLLER
24
DRIVE COMMAND
POSITIONAL INFORMATION
PAN TILTER CONTROLLER
25
MODE CONTROLLER
23
CONTROL , POSITIONAL INFORMATION
6A
MONITOR
OPERATION AREA
PANORAMA OPERATION AREA
2
7
6B
1
CONTROLLING PORTION
31
VIDEO CAPTURE
29
STORING PORTION
30
COMPUTER
POINTING DEVICE
14

Fig. 4A

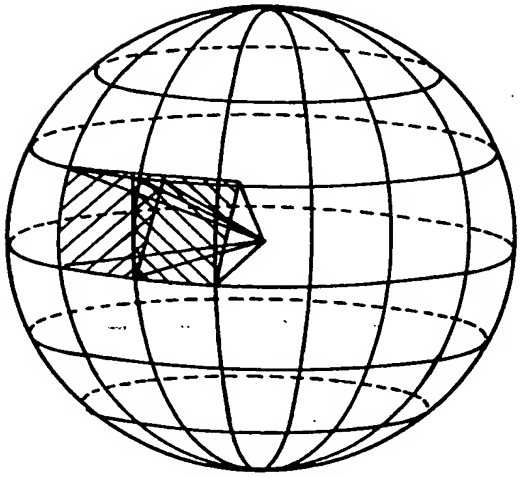


Fig. 4B

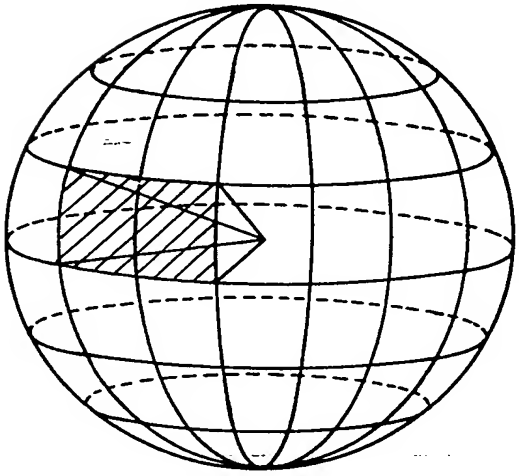


Fig. 4C

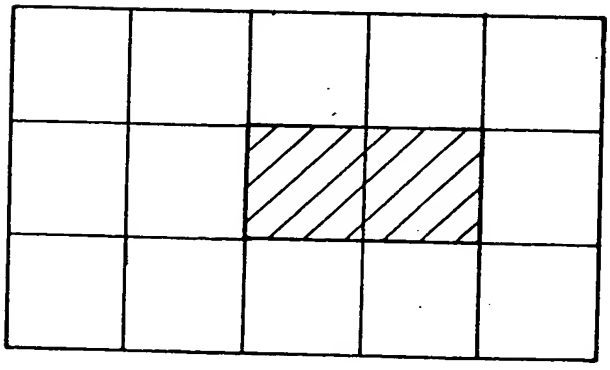


Fig. 4D

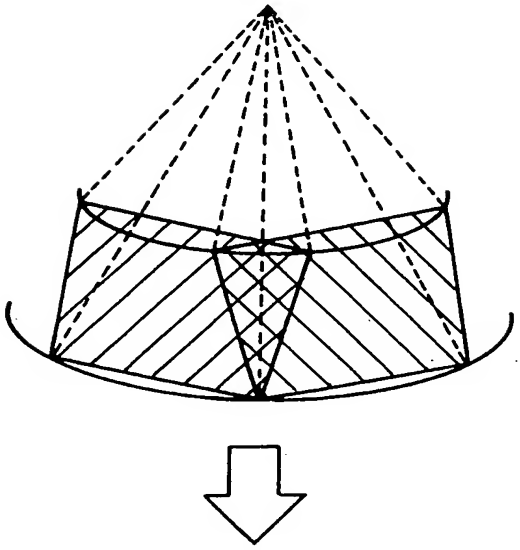


Fig. 4E

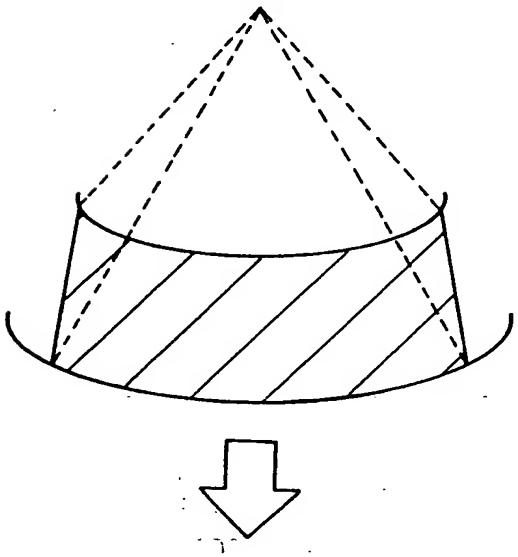


Fig. 4F

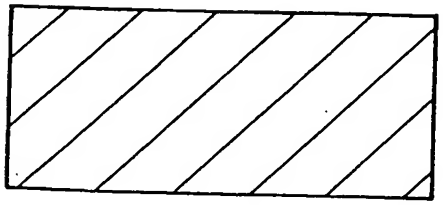


Fig. 5A

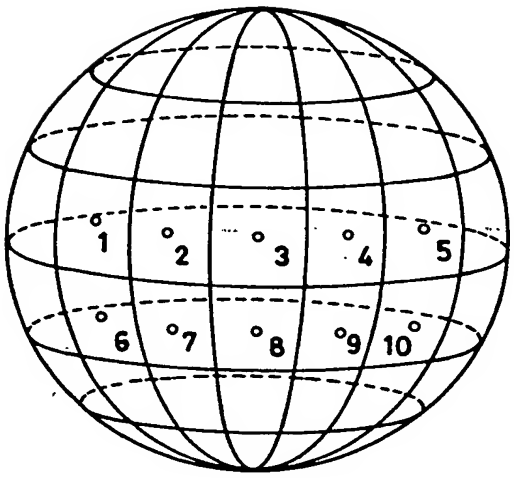


Fig. 5B

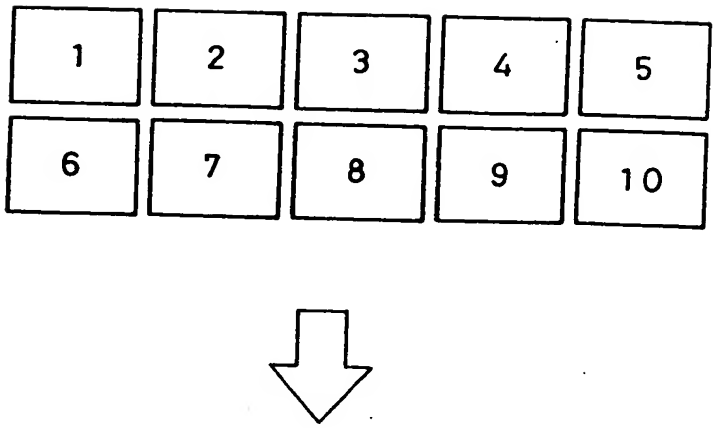


Fig. 5C

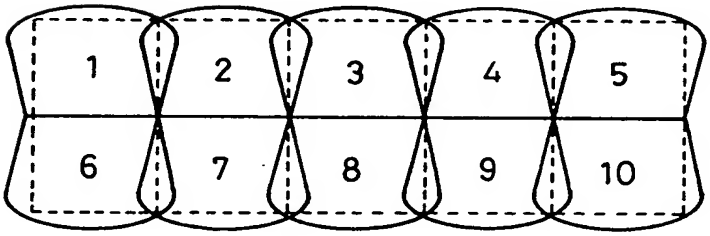


Fig. 5D

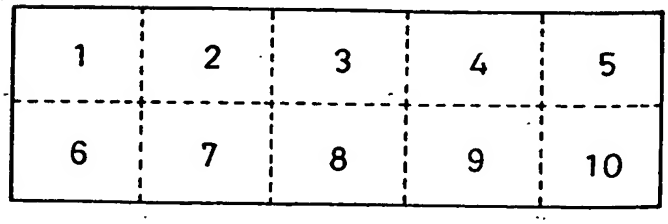


Fig. 6A

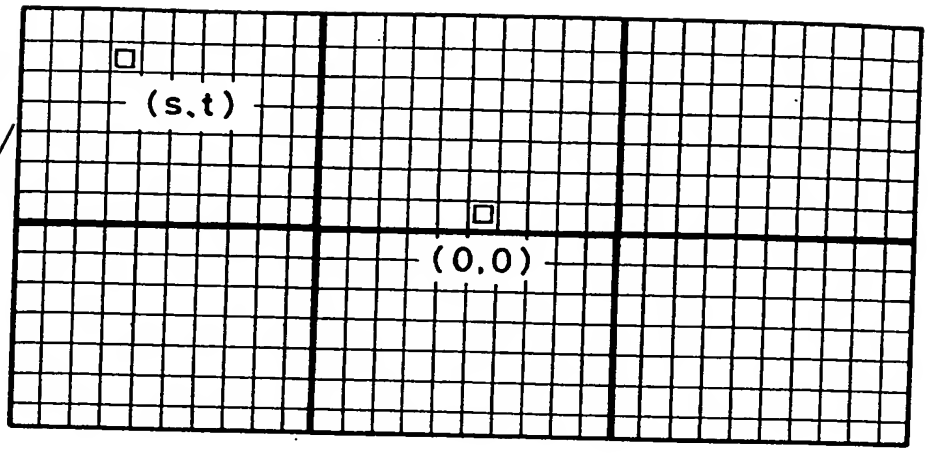


Fig. 6B

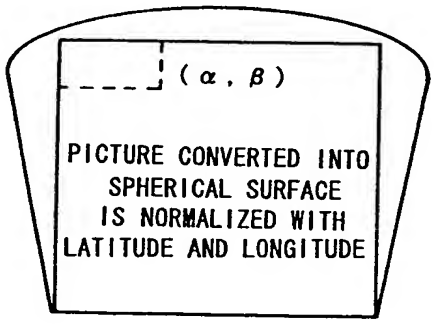


Fig. 6C

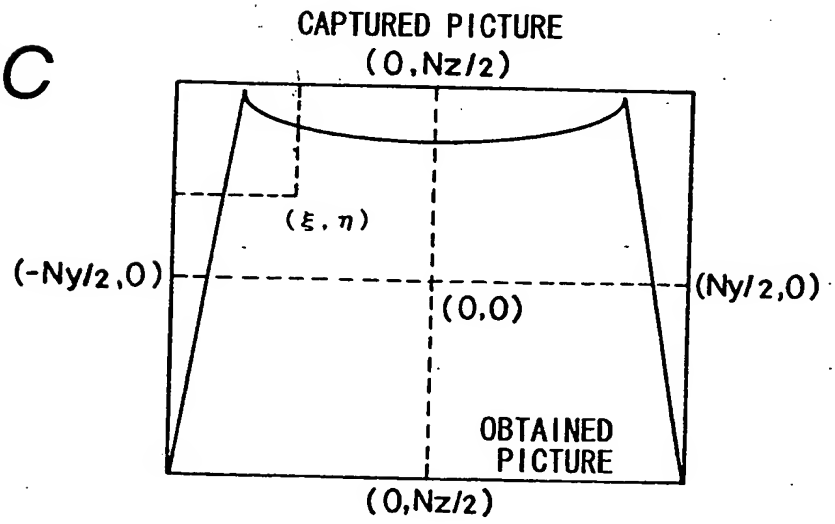


Fig. 7A

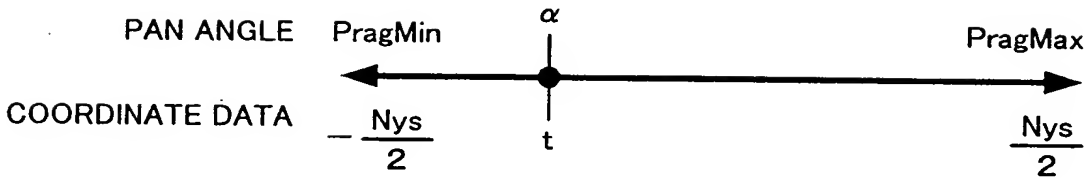

PAN ANGLE
PragMin
α
PragMax
COORDINATE DATA
− Nys / 2
t
Nys / 2

Fig. 7B

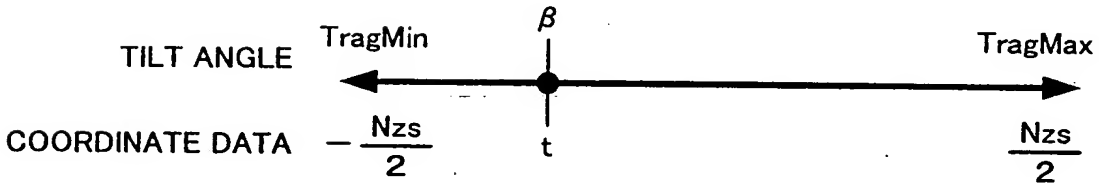

TILT ANGLE
TragMin
β
TragMax
COORDINATE DATA
− Nzs / 2
t
Nzs / 2

Fig. 8A

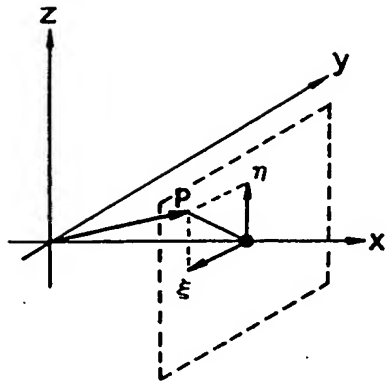


Fig. 8B

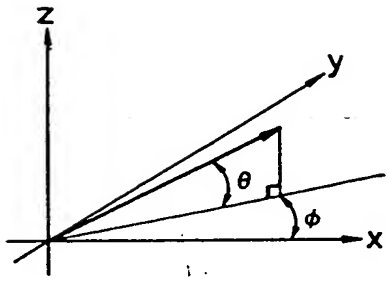


Fig. 9A

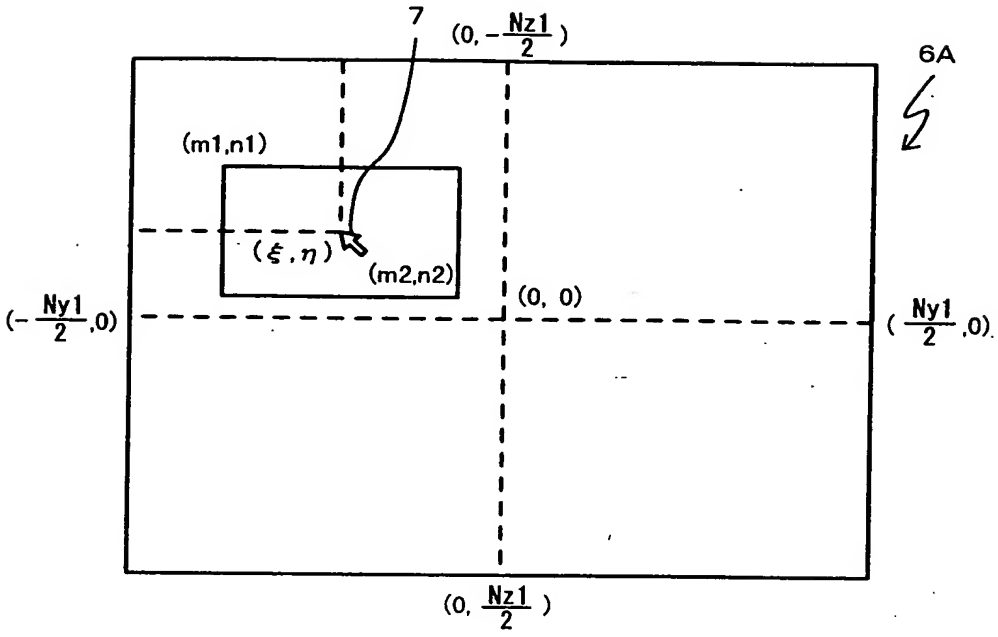

7
$(0, -\frac{Nz1}{2})$
6A
(m1,n1)
(ξ, η)
(m2,n2)
$(-\frac{Ny1}{2}, 0)$
(0, 0)
$(\frac{Ny1}{2}, 0)$
$(0, \frac{Nz1}{2})$

Fig. 9B

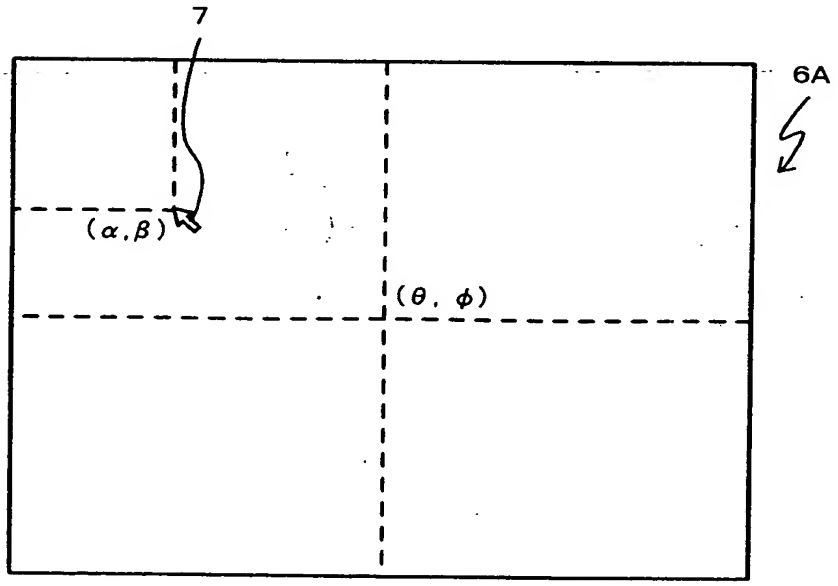

7
6A
(α, β)
(θ, ϕ)

Fig. 10A

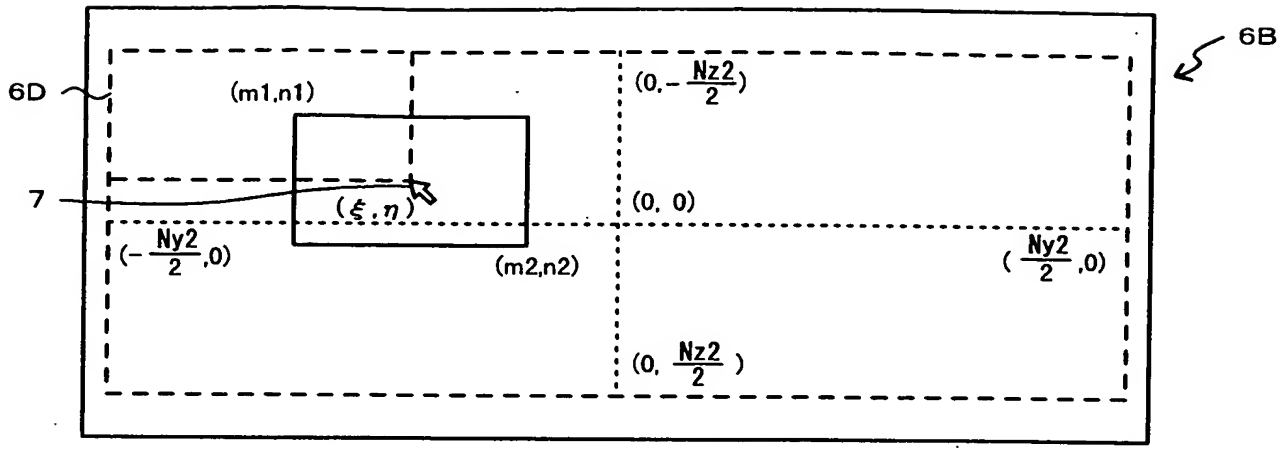


Fig. 10B

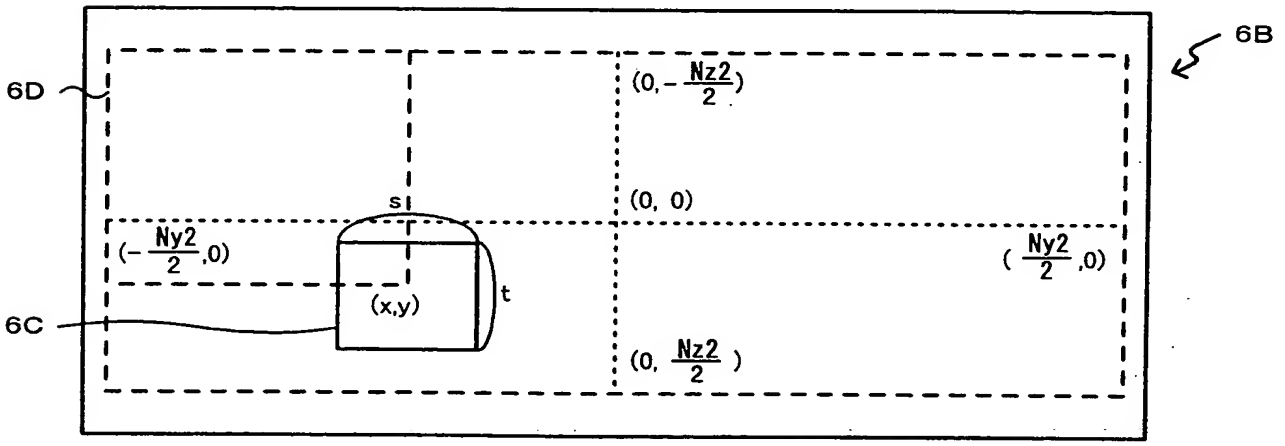


Fig. 10C

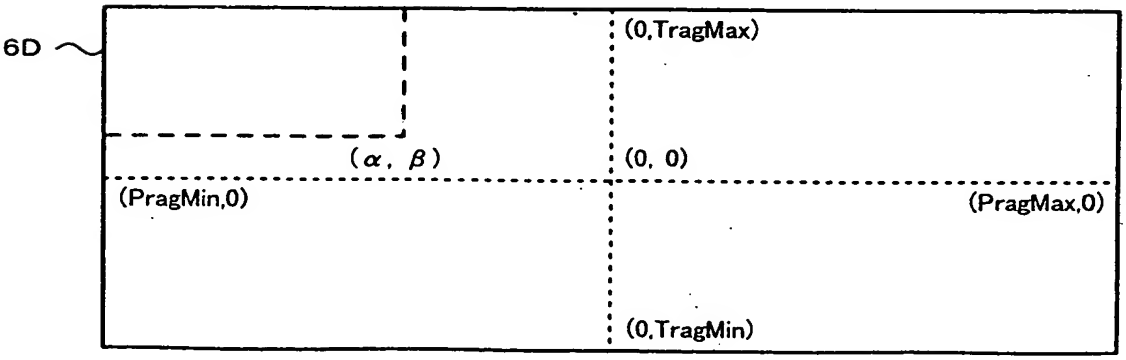


Fig. 11A

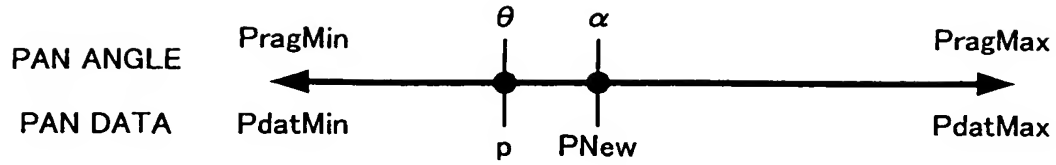


Fig. 11B

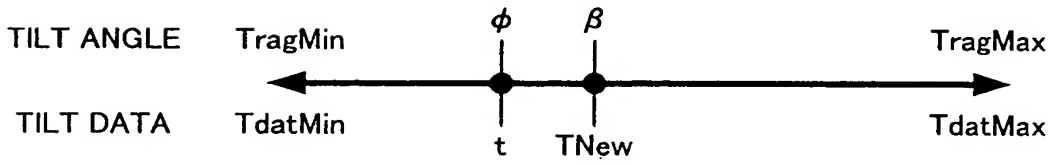


Fig. 12A

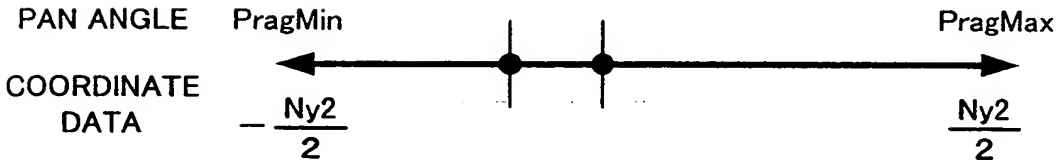


Fig. 12B

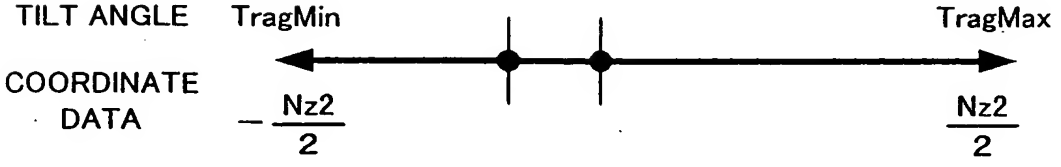


Fig. 13A

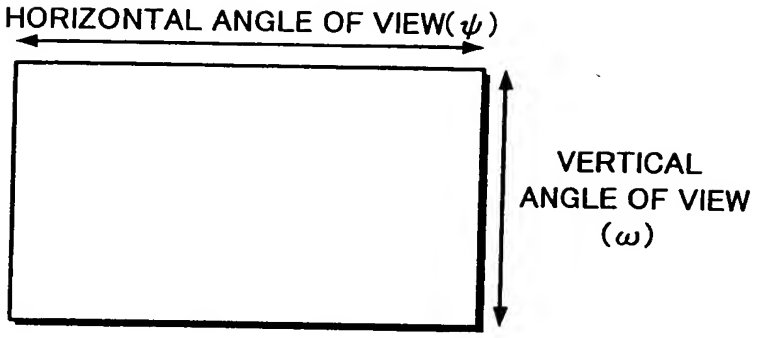


Fig. 13B

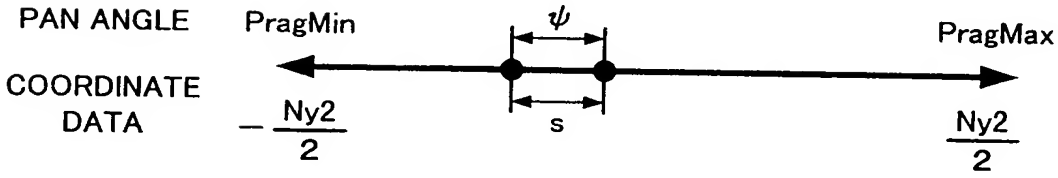


Fig. 13C

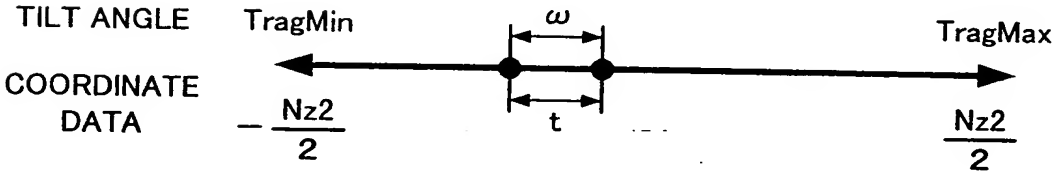


Fig. 13D

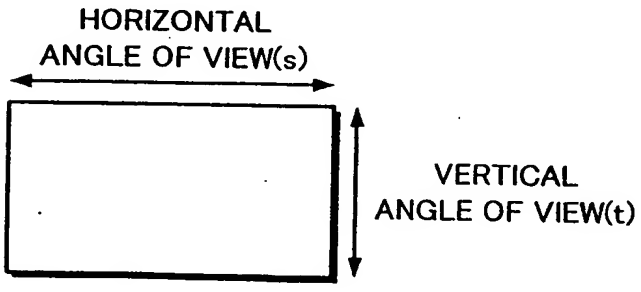


Fig. 14

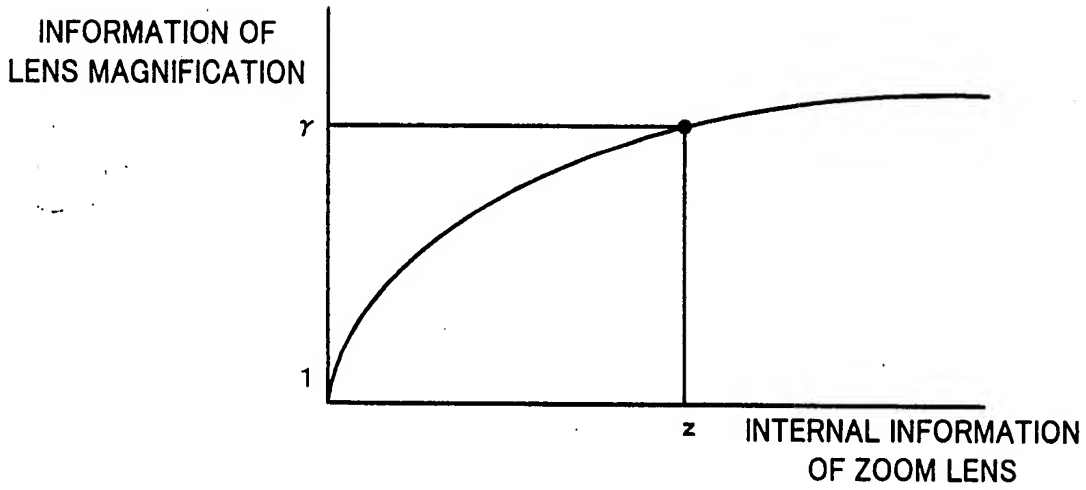

INFORMATION OF
LENS MAGNIFICATION
r
1
z
INTERNAL INFORMATION
OF ZOOM LENS

Fig. 15

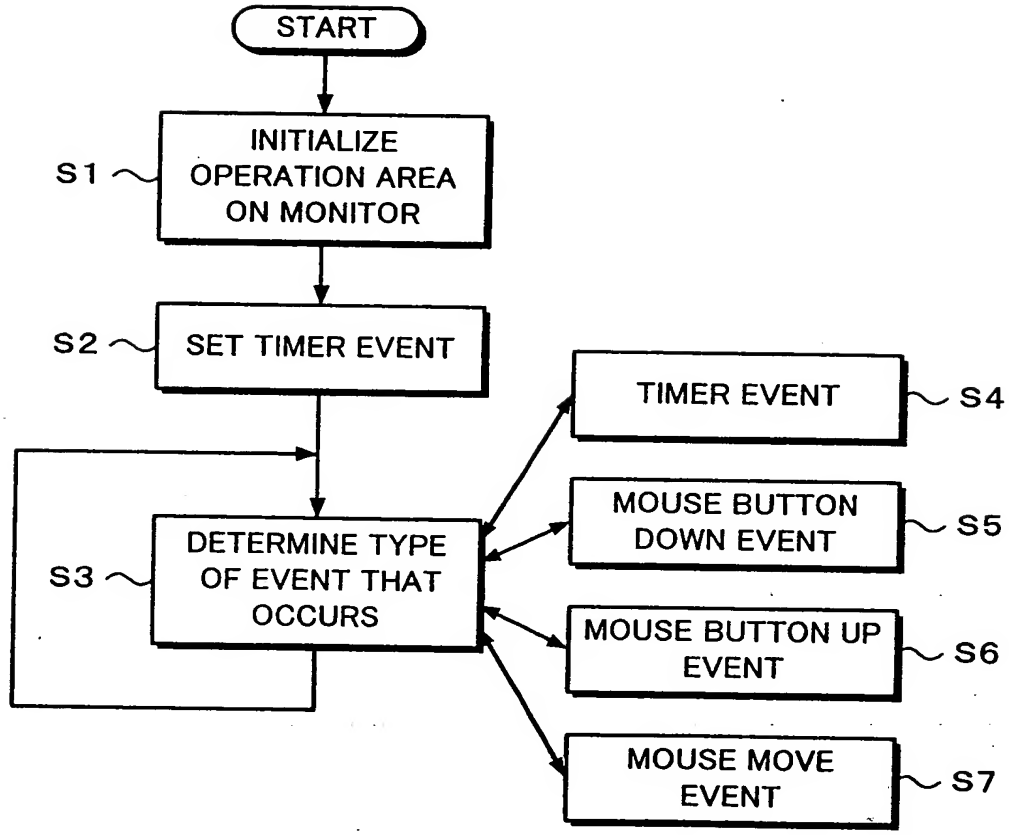

START
INITIALIZE OPERATION AREA ON MONITOR
S1
SET TIMER EVENT
S2
DETERMINE TYPE OF EVENT THAT OCCURS
S3
TIMER EVENT
S4
MOUSE BUTTON DOWN EVENT
S5
MOUSE BUTTON UP EVENT
S6
MOUSE MOVE EVENT
S7

Fig. 16

Fig. 16A
Fig. 16B

Fig. 16A

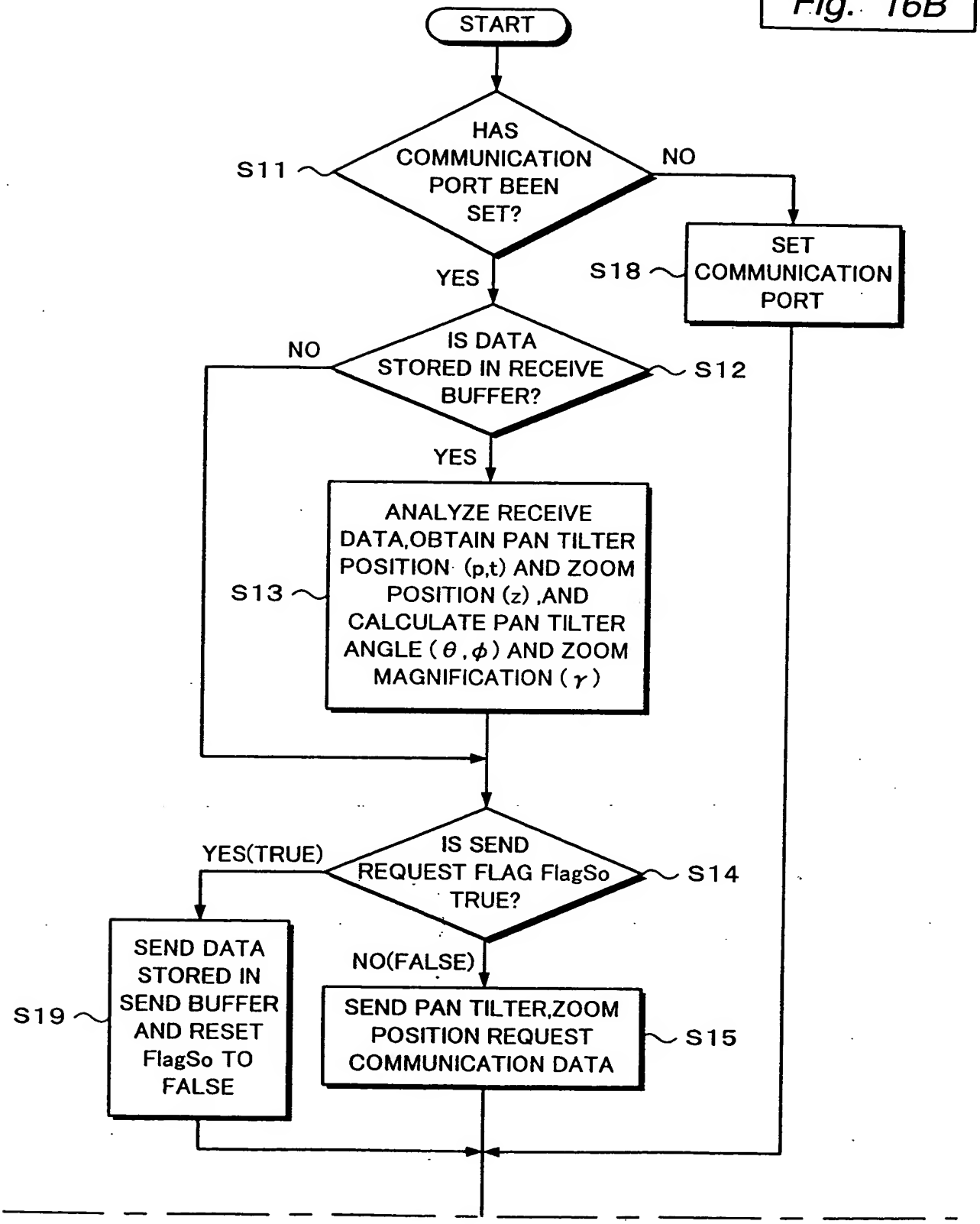


Fig. 16B

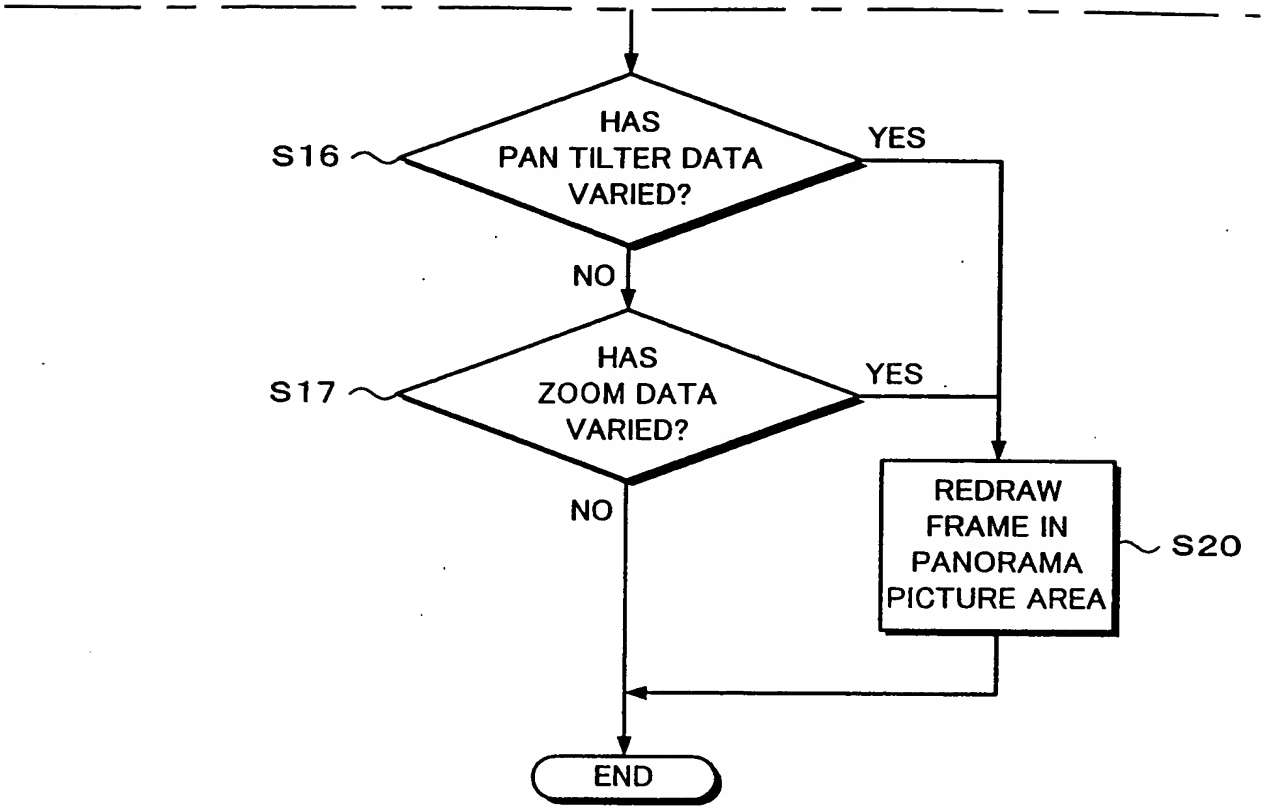

S16
HAS PAN TILTER DATA VARIED?
YES
NO
S17
HAS ZOOM DATA VARIED?
YES
NO
REDRAW FRAME IN PANORAMA PICTURE AREA
S20
END

Fig. 17

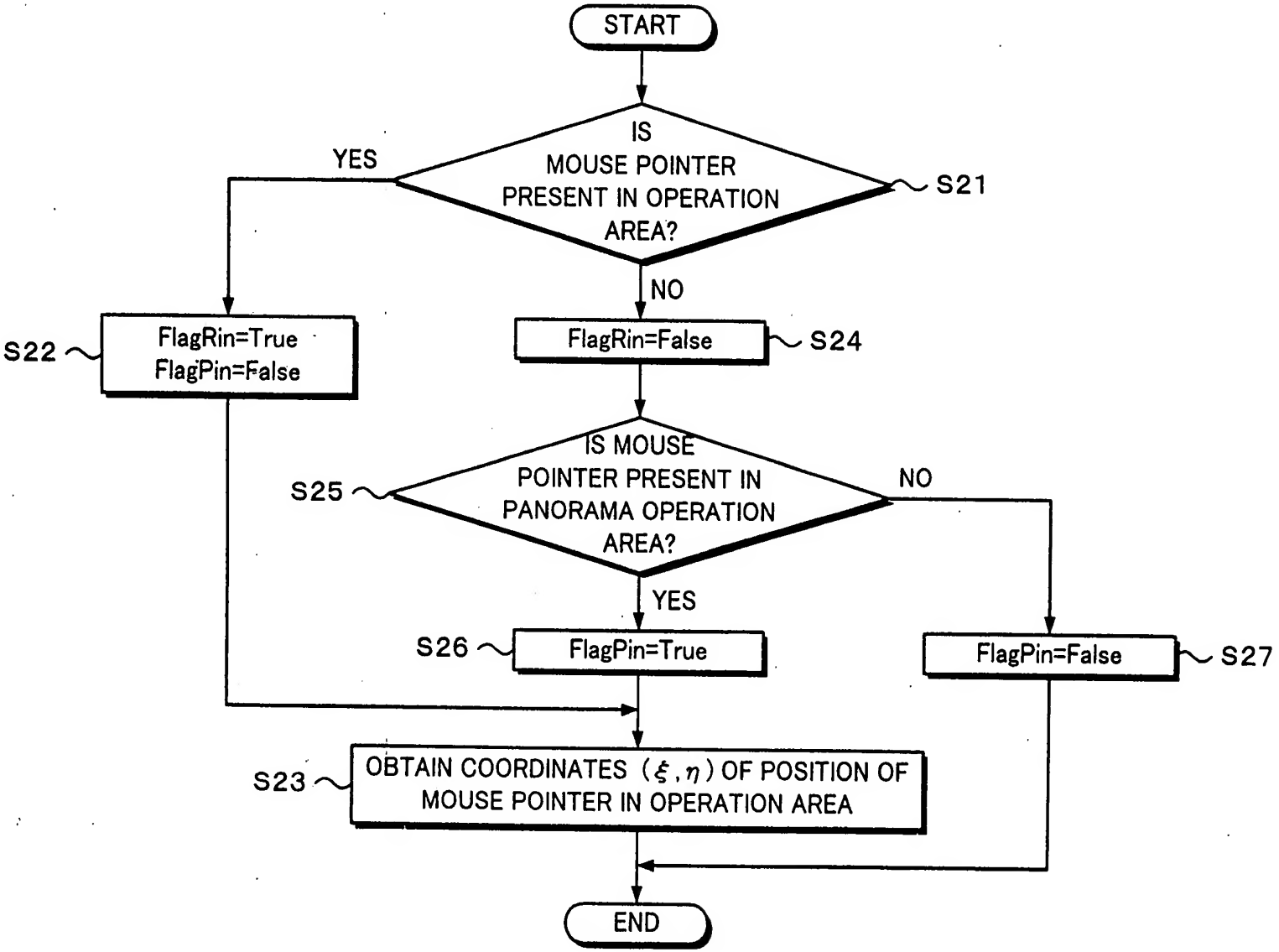

START
IS MOUSE POINTER PRESENT IN OPERATION AREA?
S21
YES
NO
S22
FlagRin=True
FlagPin=False
FlagRin=False
S24
IS MOUSE POINTER PRESENT IN PANORAMA OPERATION AREA?
S25
NO
YES
S26
FlagPin=True
FlagPin=False
S27
S23
OBTAIN COORDINATES (ξ, η) OF POSITION OF MOUSE POINTER IN OPERATION AREA
END

Fig. 18

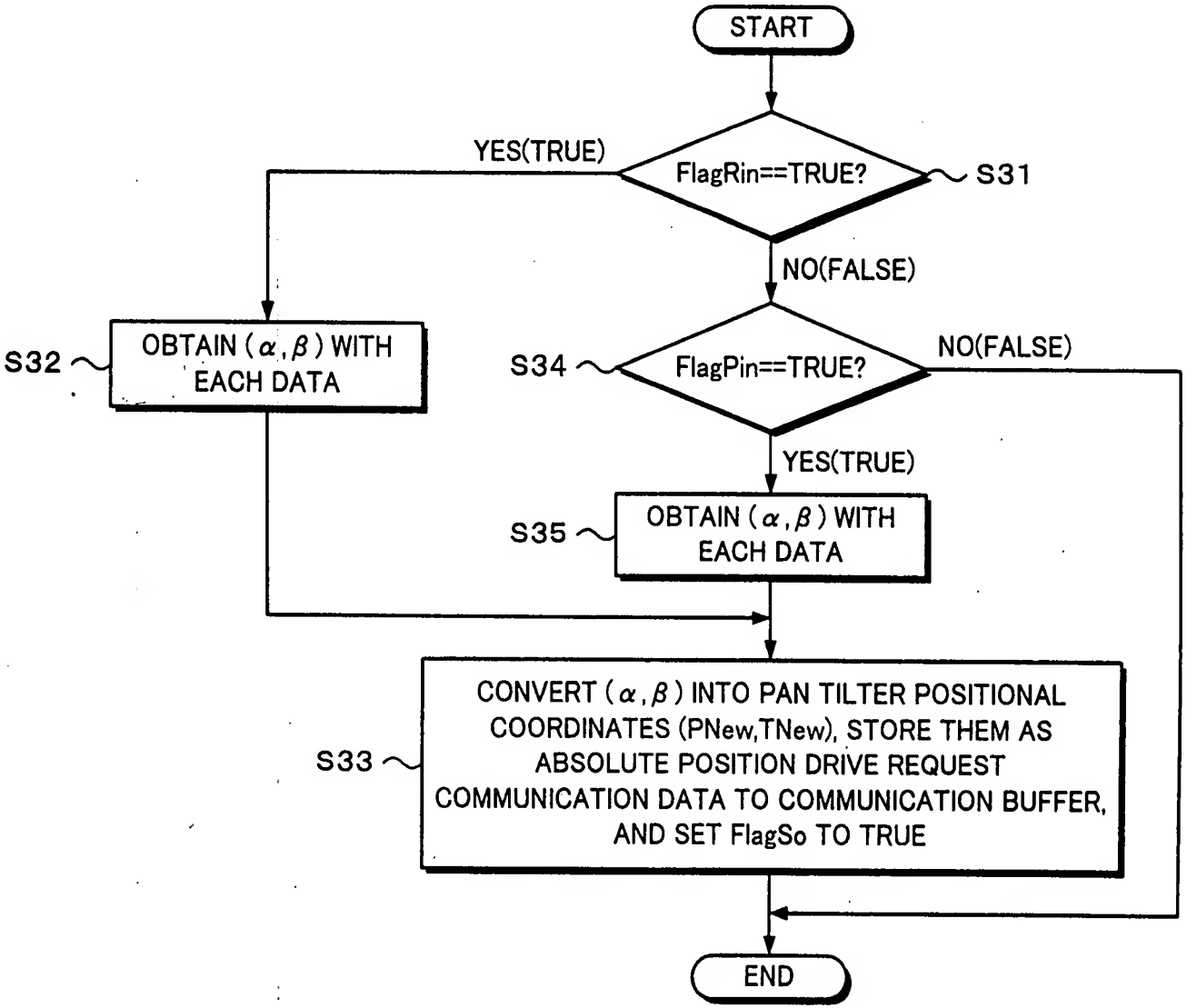

START
FlagRin==TRUE?
S31
YES(TRUE)
NO(FALSE)
S32
OBTAIN (α, β) WITH EACH DATA
S34
FlagPin==TRUE?
NO(FALSE)
YES(TRUE)
S35
OBTAIN (α, β) WITH EACH DATA
S33
CONVERT (α, β) INTO PAN TILTER POSITIONAL COORDINATES (PNew,TNew), STORE THEM AS ABSOLUTE POSITION DRIVE REQUEST COMMUNICATION DATA TO COMMUNICATION BUFFER, AND SET FlagSo TO TRUE
END

Fig. 19

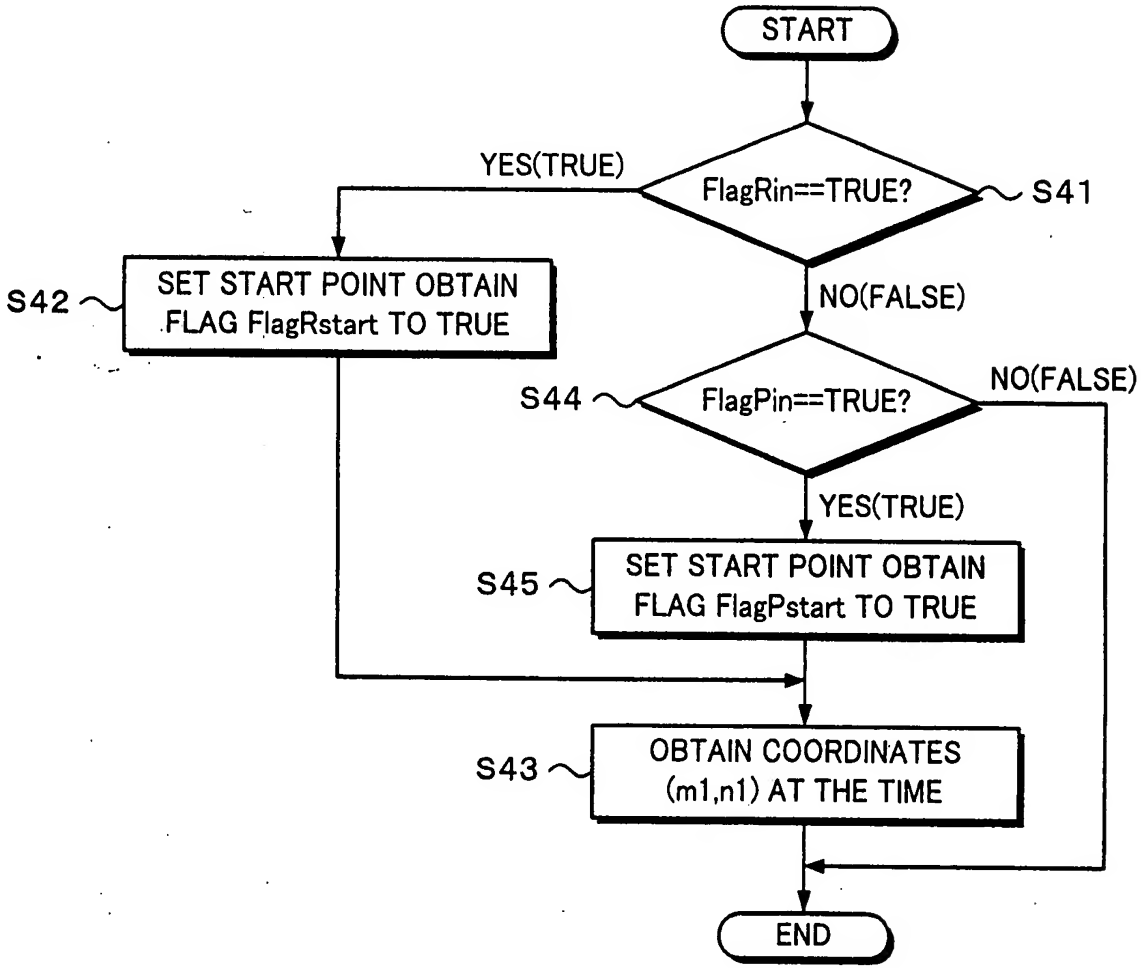

START
FlagRin==TRUE?
S41
YES(TRUE)
NO(FALSE)
S42
SET START POINT OBTAIN FLAG FlagRstart TO TRUE
S44
FlagPin==TRUE?
NO(FALSE)
YES(TRUE)
S45
SET START POINT OBTAIN FLAG FlagPstart TO TRUE
S43
OBTAIN COORDINATES (m1,n1) AT THE TIME
END

Fig. 20

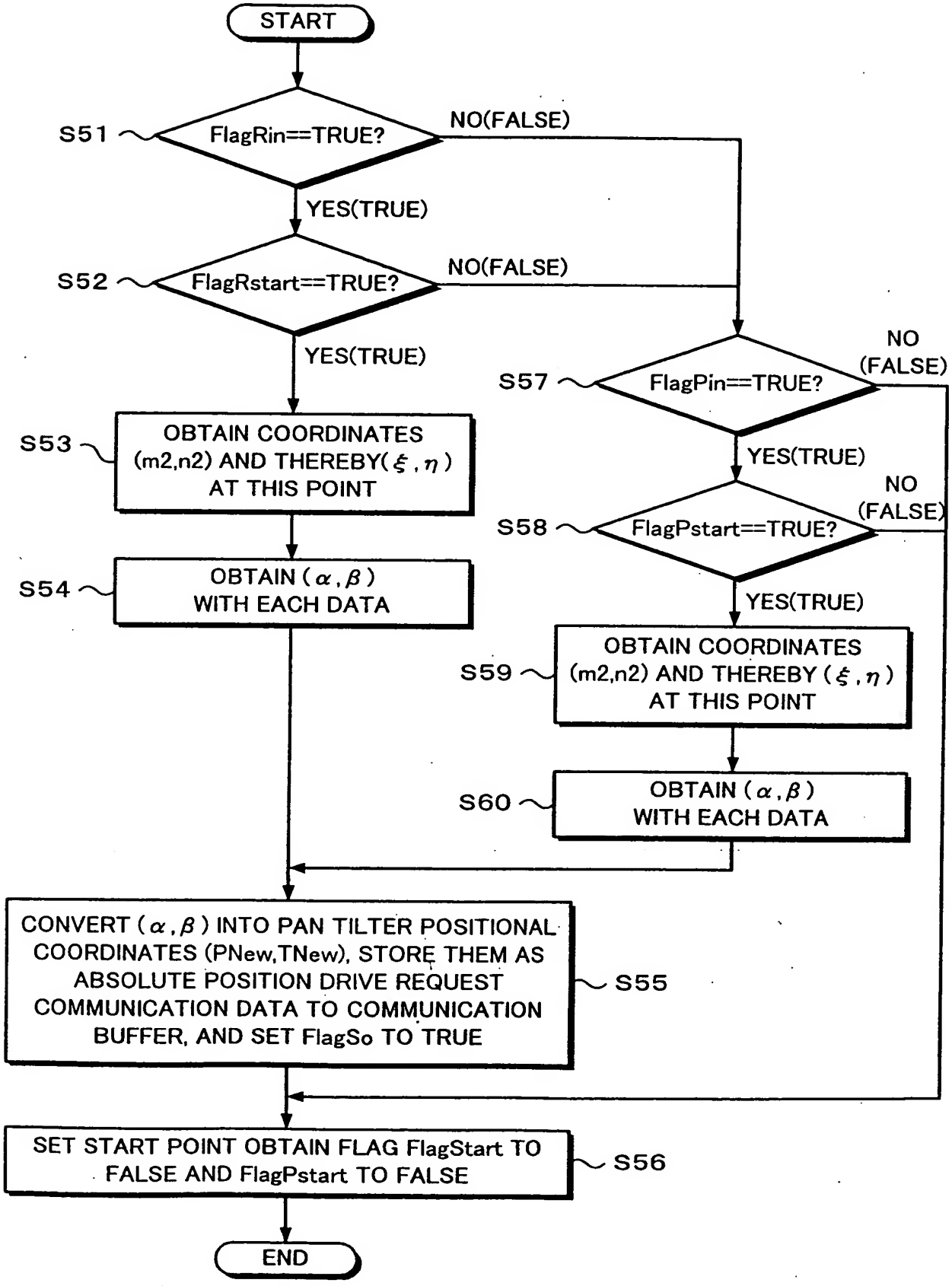

START
S51
FlagRin==TRUE?
NO(FALSE)
YES(TRUE)
S52
FlagRstart==TRUE?
NO(FALSE)
YES(TRUE)
S53
OBTAIN COORDINATES (m2,n2) AND THEREBY(ξ, η) AT THIS POINT
S54
OBTAIN (α, β) WITH EACH DATA
S57
FlagPin==TRUE?
NO (FALSE)
YES(TRUE)
S58
FlagPstart==TRUE?
NO (FALSE)
YES(TRUE)
S59
OBTAIN COORDINATES (m2,n2) AND THEREBY (ξ, η) AT THIS POINT
S60
OBTAIN (α, β) WITH EACH DATA
CONVERT (α, β) INTO PAN TILTER POSITIONAL COORDINATES (PNew,TNew), STORE THEM AS ABSOLUTE POSITION DRIVE REQUEST COMMUNICATION DATA TO COMMUNICATION BUFFER, AND SET FlagSo TO TRUE
S55
SET START POINT OBTAIN FLAG FlagStart TO FALSE AND FlagPstart TO FALSE
S56
END

Fig. 21

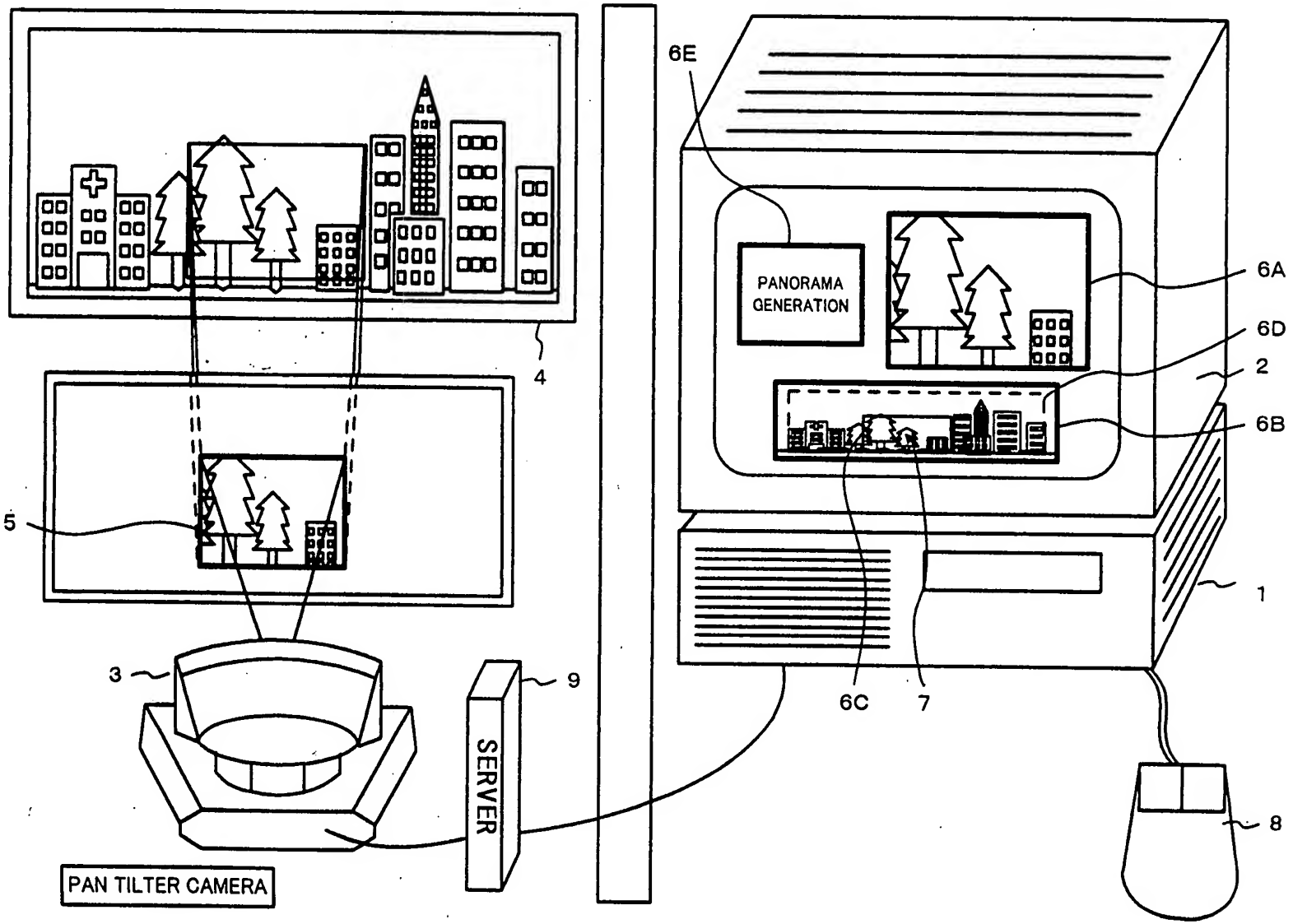
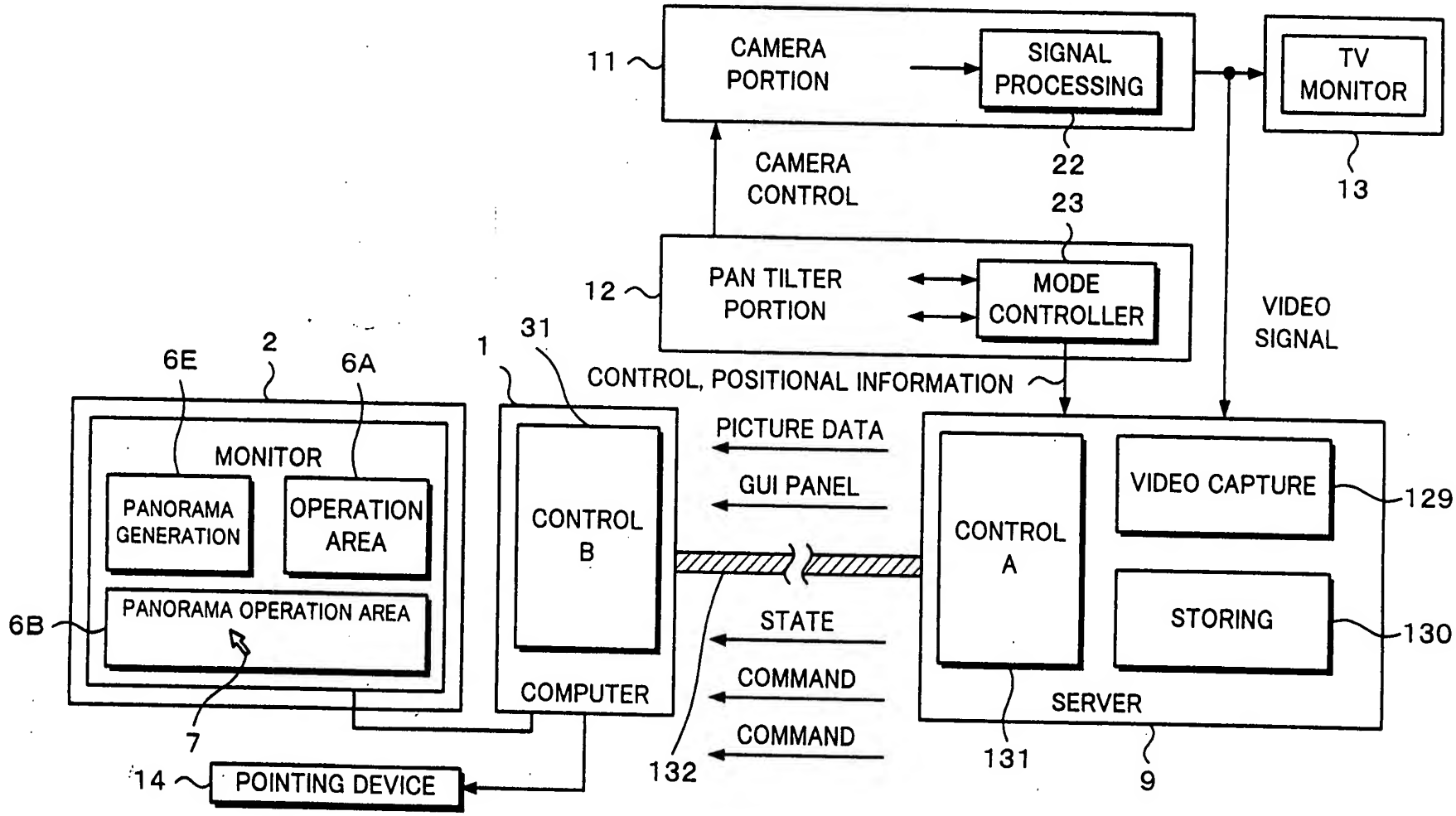

6E
PANORAMA GENERATION
6A
6D
2
6B
4
5
1
3
9
SERVER
6C
7
8
PAN TILTER CAMERA

Fig. 22


11
CAMERA PORTION
SIGNAL PROCESSING
TV MONITOR
22
13
CAMERA CONTROL
23
12
PAN TILTER PORTION
MODE CONTROLLER
VIDEO SIGNAL
CONTROL, POSITIONAL INFORMATION
6E
2
6A
1
31
MONITOR
PANORAMA GENERATION
OPERATION AREA
PANORAMA OPERATION AREA
6B
7
CONTROL B
COMPUTER
PICTURE DATA
GUI PANEL
STATE
COMMAND
COMMAND
132
CONTROL A
VIDEO CAPTURE
129
STORING
130
SERVER
131
9
14
POINTING DEVICE

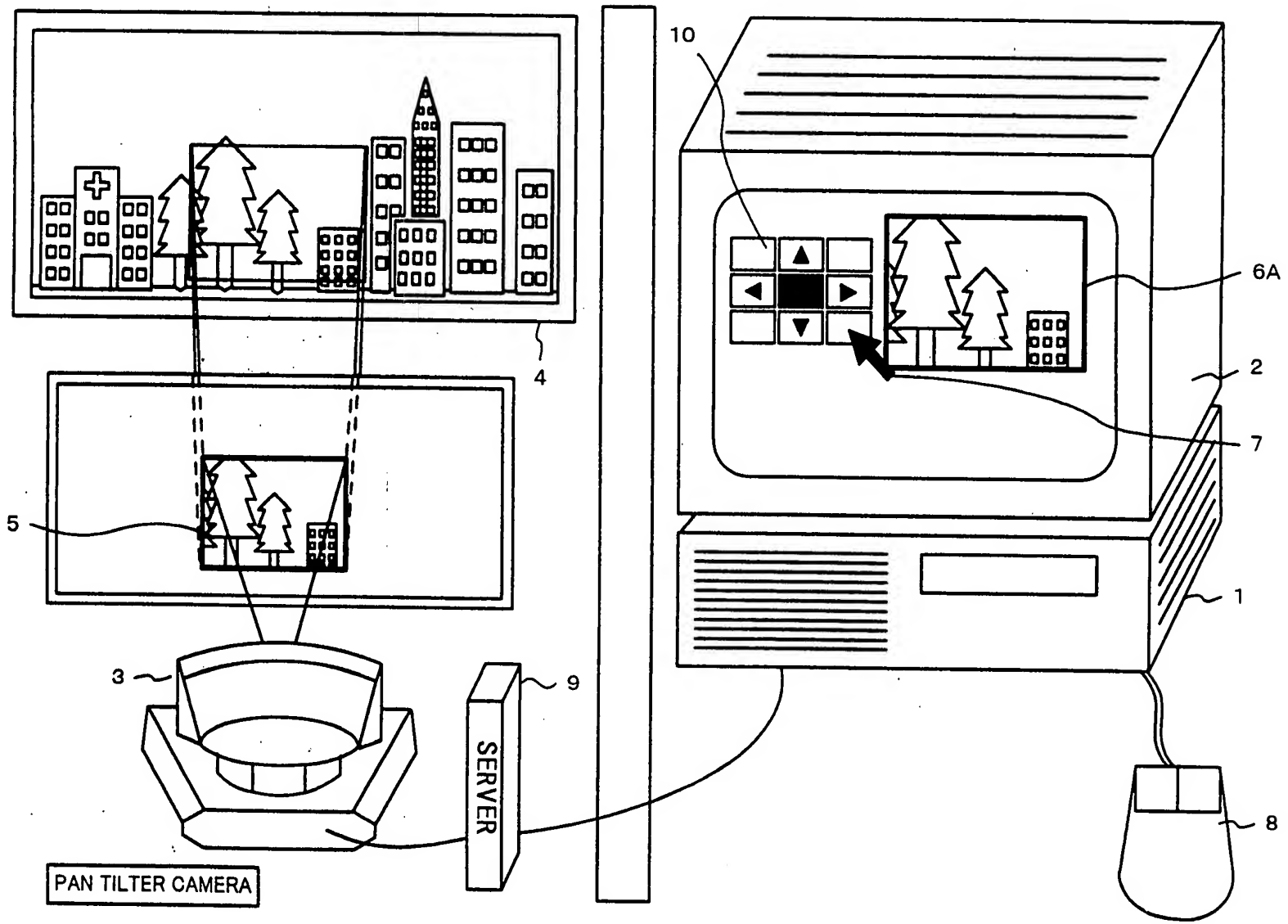



Fig. 23